

## ABSTRACT

An exciter assembly for supplying power to a superconducting load, such as a superconducting field coil, disposed within a cryogenic region of a rotating machine. The exciter assembly provides an efficient and reliable approach for transferring the electrical power energy across a rotating interface. The exciter assembly includes a transformer having a primary winding and a secondary winding, and a rotatable enclosure including a wall having an intermediate core formed of a high permeability material. The intermediate core is positioned between the primary of a transformer and the secondary of the transformer. In essence, the intermediate core acts as a flux "window" or "shunt" between the primary winding and the secondary winding. One of the primary and secondary windings is generally positioned in a rotational reference frame relative to the other of the primary and secondary windings.

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